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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,776	06/30/2003	Kei Yamamoto	204552028900	8129

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EXAMINER

FLORES RUIZ, DELMA R

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,776

Applicant(s)

YAMAMOTO ET AL.

Examiner

Delma R. Flores Ruiz

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-22 is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

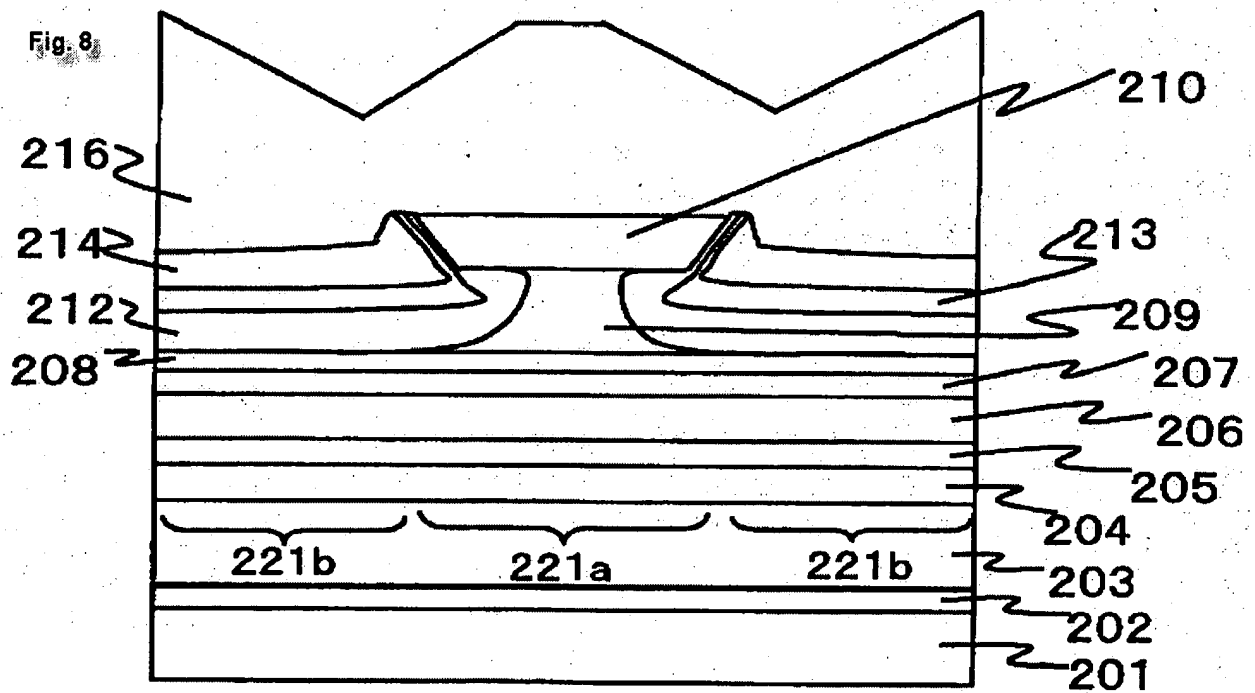
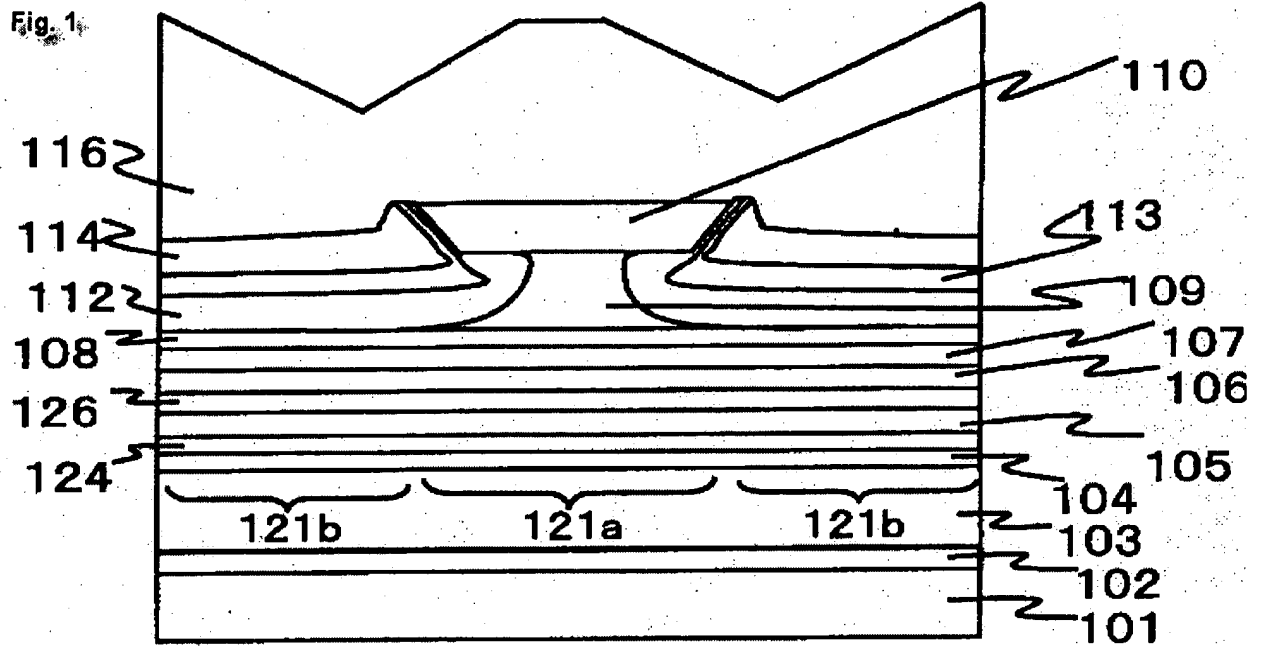
The changes made to 35 U.S.C. 102(e) by the American Inventors' Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1 – 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirukawa (6,670,643).

Regarding claim 1, Hirukawa discloses in Figures 1 – 10 a semiconductor laser device having an oscillation wavelength of larger than 760 nm and smaller than 800nm (Column 3, Lines 38 - 40, and claim 10) in which at least a lower clad layer (see Fig. 1,

Character 103 or see Fig. 8, Character 203) a lower guide layer (see Fig. 1, Character 104 and 126 or see Fig. 8, Character 204), an active region (see Fig. 1, Characters 105 or see Fig. 8, Character 205) and upper guide layer (see Fig. 1, Character 106 or see Fig. 8, Character 206) and an upper clad layer (see Fig. 1, Character 107 or see Fig. 8, Character 204) are supported by GaAs substrate (see Fig. 1, Character 101, or see Fig. 8, Character 201 and Column 2, Line 16) the active region (see Fig. 1, Character 105 or see Fig. 8 Character 205) having a quantum well structure in which one or more well layers (see Column 3, Lines 44 - 45) and barrier layers (see Column 3, Line 45) are stacked (Column 6, Lines 66 – 67, Column 7, Lines 1 – 2 and Column 9, Lines 55 – 61), wherein said one or more well layer and said barrier layer are formed of any one of InGaP, InGaAsP and GaAsP (Column 5, Lines 65 – 67, Column 6, Lines 1 – 4 and 67 and Column 9, Lines 55 – 61) said upper and/or lower guide layer is formed of $\text{Al}_z \text{Ga}_{1-z} \text{As}$ ($0.20 < z < 1$) (see Column 8, Lines 21 – 60, Column 11, Lines 65 – 67 and Column 12, Lines 1 – 23).

Regarding claim 2, Hirukawa discloses in Figures 1 – 10 a value of z representing a mole fraction of Al in the group-III elements of said upper and/or guide layer is larger than 0.25 (see Fig. 1, Character 126 Column 5, Lines 40 – 41).



Regarding claim 3, Hirukawa discloses in Figures 1 – 10 a upper and lower cladding (see Fig. 1, Characters 103 and 107 or see Fig. 8, Characters 203 and 207) contain Al, and a value of z , wherein a value of z represent a mole fraction of Al in the group-III elements of said upper and/or lower guide layer, is smaller than a value of an Al mole fraction of said upper and lower clad layer (see Fig. 1, Characters 103 and 107 or see Fig. 8, Characters 203 and 207, Column 5, Lines 35 – 67, Column 6, Lines 1 – 25, and Column 9, Lines 27 – 67).

Regarding claim 4, Hirukawa discloses in Figures 1 – 10, the value of z varies stepwise or continuously and is such a fashion as to increase with increasing nearness to said upper and lower clad layers (Figures 1 and 8).

Regarding claim 5, Hirukawa discloses in Figures 1 – 10, a value of z , where a value of z represents a mole fraction of Al in the group-III elements of upper and/ or lower guide layer, of at least a portion in contact with a barrier layer of said upper and/or guide layer is smaller than 0.4, (see Fig. 8, Characters 204 and 206, Column 9, Lines 27 – 47).

Regarding claim 6, Hirukawa discloses in Figures 1 – 10, a one or more well layers have a compressive stain (see Fig. 1 Character 105, see Fig. 8, Character 205) Column 9, Lines 17 – 22 and Column 11, Lines 34 – 50).

Regarding claim 7, Hirukawa discloses in Figures 1 – 10, barrier layer have a tensile strain (see Column 11, Lines 34 – 50).

Regarding claim 8, Hirukawa discloses in Figures 1 – 10, a semiconductor laser is a light-emitting device (see Column 12, Lines 47 – 54).

Allowable Subject Matter

Claims 9 – 22 are allowed.

The following is an examiner's statement of reasons for allowance: Claim 9 recites a semiconductor laser structure including the specific structure limitation of barrier layer are formed of an $\text{In}_{1-x}\text{Ga}_x\text{As}_{1-y}\text{P}_y$ having a band gap energy larger than that of said well layers, and there hold relationship that $0 < x < 1$; $0.02 < y < 0.75$ and $|(a_2 - a_1) / a_1| * 100 \leq 0.65$, where a_1 is lattice constant of said one or more well layers, and a_2 is lattice constant of said barrier layers, which is neither anticipated or disclosed nor suggested in any piece of available prior art, which is neither anticipated nor obvious over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments with respect to claims 1 – 22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (571) 272-1940. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Sun Harvey can be reached on (571) -272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Delma R. Flores Ruiz
Examiner
Art Unit 2828



Min Sun Harvey
Supervisor Patent Examiner
Art Unit 2828

DRFR/MH
April 12, 2006